CHAPTER 1 – NORTH CONNECTOR PURPOSE AND NEED

Introduction
The North Connector Project is located immediately north of the Interstate 80/Interstate 680/State Route 12 (I-80/I-680/SR12) Interchange area in the City of Fairfield and an unincorporated area of Solano County.

Project Background
Increases in commercial and residential development in the western portion of Fairfield have generated a significant increase in demand on local roadways. In addition to increases in local traffic, regional traffic on I-80 has also increased over the last decade, resulting in frequent periods of heavy congestion and backup on the freeway. The goal of the North Connector Project is to enhance the safety and operation of the interchange area in City of Fairfield and Solano County. Local traffic would use the North Connector to bypass the interchange and regional traffic on the interstate and state highway system would experience reduced congestion and improved traffic flow as a result. In addition, the North Connector Project would provide a direct connection from SR12 West to SR12 East.

A regional truck-scale facility is located along I-80 between I-680 and SR12 East. The large volume of trucks entering and exiting this facility contributes to extensive weaving and heavy congestion along I-80 through the Fairfield area.

Purpose and Need
The North Connector Project is needed to address existing and future traffic congestion on local streets and I-80 in Solano County and Fairfield, and to close gaps in the local circulation network. The Suisun Valley and Green Valley areas of Fairfield are located several miles to the west of downtown Fairfield. Currently, I-80 is the main transportation link between these areas because of limited local streets and roads traveling east to west. The primary local roadway connection between the Suisun Valley and downtown Fairfield is Rockville Road. This 2-lane country road is located north of I-80, and cannot support significant traffic increases. As a result, there is a need for additional east/west capacity in the local roadway network between Abernathy Road and Suisun Valley Road.

Project Description
The North Connector Project begins at the junction of SR12 West and Red Top Road and then proceeds along the north side of I-80, connecting to the existing four-lane Business Center Drive. Between Green Valley Road and Suisun Valley Road, the North Connector would use the existing Business Center Drive. No improvements to Business Center Drive would be necessary in this area. Where Business Center Drive connects with Mangels Boulevard, the Project would reconstruct this intersection to align the main flow of traffic along Business Center Drive.

A portion of new roadway is planned to be constructed from the intersection of Mangels Boulevard and Suisun Valley Road to the east to Suisun Creek as part of a recently approved local development project (Fairfield Corporate Commons Project). The City of Fairfield recently certified the Fairfield Corporate Commons Project Environmental Impact Report (EIR) under CEQA and approved the project (August 2005). The North Connector Project would extend this new roadway to the east, across Suisun Creek, and connect with Abernathy Road at the I-80/Abernathy Road interchange. The proposed North Connector roadway improvements are described in more detail below.

West End
The West End of the North Connector Project is primarily located within Solano County. (See Figure I.1) Existing land uses in this portion of the Project area are predominately agriculture with some commercial and residential development. The topography of the West End consists of rolling grass-covered hillsides with riparian corridors along local creeks.

Proposed improvements in the West End consists of extending Business Center Drive westward 1.04 miles from its current terminus to connect with SR12 West at Red Top Road (see Figure I.2). The existing Red Top Road/SR12 West intersection consists of a stop sign controlled T-intersection. The Project would reconstruct this intersection to a four-way signalized intersection with sufficient lanes on all approaches to accommodate through, left- and right-turn movements. Both the eastbound and westbound approaches to this intersection on SR12 West would be widened to accommodate additional through and turn lanes. Existing portions of Red Top Road south of SR12 West would also be widened to accommodate new turn lanes and the existing at-grade railroad crossing on Red Top Road would be reconstructed to accommodate the wider roadway. The design of the new signalized intersection is shown in Figure I.3.

Between Business Center Drive and SR12, the North Connector would be constructed as a two-lane roadway (one lane in each direction), with limited access to adjacent agricultural uses. Provisions for access under the roadway would be provided to allow the movement of livestock and equipment on the agricultural property the roadway crosses. The new roadway would sever access to one agricultural property and would be replaced by a signal access point along the new roadway.

Other facilities to be constructed in this area include stormwater retention/detention basins along the roadway right of way to collect and treat stormwater runoff from the new roadway. The stormwater retention/detention basins would be designed to meet the stormwater treatment requirements of the Regional Water Quality Control Boards (RWQCB) National Pollutant Discharge Elimination System (NPDES) Provision C.3 requirements.

Landscaping along this portion of the new roadway would include planting grasses and other low-plant materials to control erosion and blend with the surrounding hillsides.

Central Section
The Central Section of the North Connector Project is located in the City of Fairfield. (See Figure I.1) Existing land uses in this area consist of commercial land uses and vacant property zoned for commercial development. The North Connector Project would involve reconstructing the intersection of Business Center Drive and Mangels Boulevard. The intersection would be realigned so the main flow of traffic will be along Business Center Drive. A small portion of Mangels Boulevard between Business Center Drive and Suisun Valley Road would be demolished. Between Suisun Valley Road and Suisun Creek, the Central Section of the North Connector would tie into a planned road to be constructed by others, approved as part of the Fairfield Corporate Commons Project. The proposed improvements in this area are shown in Figure I.4.

East End
The East End of the North Connector Project is primarily located within Solano County. (See Figure I.1) Existing land uses in this portion of the Project area consist of agricultural farms and orchards, interspersed with residences and small businesses. The topography of the area is

generally flat with a well defined riparian corridor lining Suisun Creek. The proposed Project would extend the planned four-lane roadway being constructed as part of the Fairfield Corporate Commons Project about 1.6 miles east across Suisun Creek to connect with Abernathy Road at the I-80/Abernathy Road interchange. (See Figure I.5) To cross Suisun Creek, a new bridge would be constructed. The new bridge would affect a small portion of the Fairfield Linear Park which is located along the west bank of Suisun Creek. In this area, the Project would involve realigning the existing multi-use path through the park to cross under the new bridge. The new bridge would span across the creek (no bridge supports or pilings in the creek) to reduce impacts to the creek and migrating steelhead.

East of Suisun Creek the North Connector Project would be constructed as a four-lane, at-grade roadway. A cul-du-sac would be constructed where the North Connector would cross Russell Road and at the connection with Abernathy Road. In this area, one business would be displaced to accommodate the new roadway. The alignment of the North Connector in this area has been designed to accommodate the future relocation and expansion of the westbound I-80 truck-scale facility[1].

The new roadway would sever access to several agricultural parcels in this area. The Project would include replacement of the affected access by provided direct access points along the new roadway.

Other facilities constructed as part of the new roadway in this area would include drainage swales and culverts designed to meet the stormwater treatment requirements of the RWQCB NPDES Provision C.3 requirements.

Abernathy/Chadbourne Road

Abernathy Road - The Abernathy Road Overcrossing would be re-striped and would restrict left turns to the westbound I-80 on ramp. Drivers would access westbound I-80 from an on-ramp located south of the overcrossing at Chadbourne Road and SR12.

Chadbourne Road (Abernathy Road becomes Chadbourne Road at SR12) - A right turn lane would be added to northbound Chadbourne Road to access east-bound I-80.

NORTH CONNECTOR CONSTRUCTION ACTIVITIES

The North Connector Project involves construction of a new road with grading, paving and ancillary facilities such as traffic signals, lighting, signs, landscaping and fencing. One pre-cast concrete girder bridge would be built across Suisun Creek. The bridge would have abutments on pile supported foundations, and can span the creek without center piers. No construction activities are planned within Suisun Creek.

Construction activities would differ by section. The West End would require grading for the proposed connection to SR12. The Red Top Road intersection would have to be improved while maintaining traffic flow on SR12 West. The work in the Central Section requires the realignment of existing roads and the demolition of a portion of Mangels Blvd, during which time access would be maintained along Business Center Drive. Most of the East End is on level agricultural land with the road just above grade. There would be limited grading and minor access requirements for the intersecting farm roads. The North Connector merges with

1 Cordelia Truck Scales Relocation Study, February 16th 2005.

Abernathy Road on the East End, which would require staging and traffic control for construction.

ORDER OF WORK FOR CONSTRUCTION OF ROAD AND BRIDGES

The general order of work for a typical road section is as follows:

- Relocate underground and above ground utilities (gas lines, electrical lines, water lines & sanitary sewerage) within construction area;
- If required for staging, install temporary streetlights and signals, temporary paving, and safety barriers;
- Clear and grub area to be graded. Remove existing pavements, structures and utilities within construction zone;
- Trench excavate, shore, and install underground utilities including culverts, storm drainage and conduits. Backfill as required;
- Grade roadway to final subgrade and place curb and sidewalk, and curb ramps and driveways. Place subbase and base courses;
- Place AC pavement and striping;
- Install new traffic signals and street lighting. Place new signs and remove temporary pavements and signs;
- Complete landscaping and fencing. Clean up site and remove equipment and remaining materials;

The general order of work for a bridge is as follows:

- Excavate and shore for abutment foundations;
- Drive piles for abutment foundations;
- Form and pour concrete abutments;
- Install pre-cast concrete girders;
- Form and pour concrete deck with barriers.
- Install conduits, signs and fencing; and
- Restore site around abutments. Clean up and remove equipment and remaining materials.

CONSTRUCTION STAGING

Construction staging would be required to construct the new North Connector/Red Top Road/SR12 West intersection in the West End of the Project area and where the North Connector would connect with Abernathy Road in the East End. The work would be divided into stages to maintain existing traffic flow and local roadway access. For each stage, the contractor is typically required to provide a minimum number of through lanes and possibly one turning lane to satisfactorily accommodate vehicular traffic during construction. The contractor is also typically required to maintain local vehicular access to driveways and properties, even when an existing street is closed for construction. The contractor may be allowed to close major streets and intersections at night and during the weekends.

AREA OF POTENTIAL EFFECTS (APE) FOR CULTURAL RESOURCE EVALUATION

The Archaeological APE was established as the area that would be directly disturbed by the Project activities, including all existing and proposed right-of-way and all construction easements (slope and drainage), utility relocations, equipment storage and staging areas, and proposed environmental mitigation sites. The Archaeological APE corresponds with the Area of Direct Impact (ADI). While the Archaeological APE encompasses the Project footprint, the

Architectural APE includes the Project footprint and all areas where there is a potential for indirect effect.

NORTH CONNECTOR EXCAVATION ACTIVITIES
Construction of the North Connector Project would require a number of excavations to take place. The following table lists the purpose and depth of each required excavation.

	Depth of Excavation
Roadway	
Traffic Signal Poles	5' to 6' deep
Traffic Signs	2' deep
Roadway Excavation	2.5' deep (East End) 10' or deeper on the West End
Biology	
Riparian Mitigation Green Valley Creek	10 to 20 gallon trees, 2-3 feet
Seasonal Wetland Mitigation	Contingent on design, 4-6 feet
California Red-Legged Frog Mitigation Pond	6-10 feet
Utilities	
Utilities Excavation	3' to 5' deep
Drainage Excavation	3' to 4' deep

Utility Relocations
The Project would involve utility relocations, all of which would occur within the Project limits and footprint. The majority of relocations would occur in the vicinity of the existing SR12 West and Red Top Road intersection

ENVIRONMENTAL MITIGATION MEASURES
A number of environmental mitigation measures are recommended that would require construction or other ground-disturbing activities. Those mitigation measures are described below by topic area.

Endangered Species Mitigation
To mitigate potential impacts to California Red Legged Frog (CRLF), an endangered animal, the project includes construction of a pond in the West End of the Project area to provide replacement habitat for CRLF. The pond would be located just south of an existing Barn structure. (See Figure I.2.) The exact location, size, and design of the pond will be determined thought negotiations with the USFWS as part of the Section 7 consultation requirements under the Endangered Species Act (ESA).

Wetland Mitigation
To mitigate potential impacts to wetland and other waters of the US impacted by the project, replacement wetlands would be created. Two locations for the creation of replacement wetlands have been preliminarily identified just north of SR12 West/I-80 interchange. The exact

location, size, and design of the replacement wetland will be determined by the US Army Corps of Engineers (ACOE) as part of the Section 404 consultation requirements.

Riparian Mitigation
To mitigate potential impacts to riparian trees impacted by the Project, two areas for replacement riparian tree planting have been preliminarily identified. One location is along Green Valley Creek between I-80 and Business Center Drive. The other location would be along Suisun Creek north of I-80. The exact location and number of riparian trees to be replaced will be determined in consultation with the California Department of Fish and Game (CDFG) as part of the Streambed Alteration Agreement consultation process.

FUNDING
The North Connector Project is funded with local, state, and federal funds as part of the State Transportation Improvement Program (STIP).

CONSTRUCTION SCHEDULE
The construction for each Section is estimated to take approximately 6 to 12 months. The construction time would vary depending upon the final staging plan for the work. Construction is anticipated to take 18 to 24 months and construction of the first phase is anticipated to begin in approximately 2007.

PHASED IMPLEMENTATION
Due to funding limitations, the Project may be constructed in phases. It is anticipated that the first phase would involve construction of the improvements in the East End of the Project area and the Central Section (Business Center Drive/Mangels realignment). Improvements in the West End of the Project area, including the connection with SR12 West, are anticipated as a second phase.

NO-ACTION/NO-PROJECT ALTERNATIVE
Under the No Action/No-Project Alternative, the Project area would remain as it is currently without the improvements proposed by the North Connector Project.

RELATED PROJECTS
There are a number of other transportation projects in the vicinity of the North Connector Project. (See Figure I.8.)

I-80/I-680/SR12 Interchange Project **–** This project would increase the capacity of the I-80/I-680/SR12 interchange complex. Another component of this project is relocating the Cordelia Truck Scales. The Cordelia truck scales have been identified as a significant cause of traffic problems in the I-80/I-680/SR12 Interchange because they are located in one of the most congested segments of I-80. The merging trucks cause significant traffic congestion. A technical study was conducted to identify alternative locations for the truck scales. The study has concluded that the preferred alternative is to relocate and expand the truck scales within the I-80/I-680/SR12 interchange area.

Preliminary engineering and the environmental document for the I-80/I-680/SR12 Interchange Project are anticipated to be completed in the 2008 time frame.

I-80 HOV Lanes Project **-** This project would involve construction of high occupancy vehicle (HOV) lanes along I-80 from approximately SR12 West to east of Airbase Parkway in Fairfield.

Preliminary engineering and the draft environmental document for this project are anticipated to be completed in 2006.

Fairfield Corporate Commons- This project would involve the development of office, residential, hotel, and necessary utility and infrastructure improvements adjacent to the Cordelia Truck Scale Facility. The project also includes the construction of a spine road which would connect to the North Connector. This project was approved by the City of Fairfield in a Notice of Determination on September 20th, 2005. The project is locally funded, with capital from both the developer as well as local AB1600 fees. Construction is expected to start in Spring 2007, upon issuance of the required permits for the project.

SR12 West/Jameson Canyon Project **-** This project would convert SR12 (Jameson Canyon Highway) from a two-lane highway to a four-lane highway between I-80 and State Route 29. Preliminary engineering and the draft environmental document for this project are anticipated to be completed in Fall 2006.

*SR12 West Truck Climbing Lane Project***-** This project would construct a truck-climbing lane in the westbound direction on SR 12 West from I-80 to west of Red Top Road. The project would reduce congestion on SR12 West and the I-80/SR12 West interchange by providing an additional lane for slow moving trucks, thereby allowing automobiles to pass. Construction of this project is anticipated to begin in May 2007.

I-80 Auxiliary Lanes – This project constructed one additional lane in each direction along I-80 between I-680 and SR 12 East and constructed two-lane connectors between I-80 and I-680. Construction began on March 2004 and was completed in December 2004.

Green Valley Road I-80 Interchange – This project would develop improvements at the Green Valley I-80 Interchange to create a more efficient north-south roadway network to accommodate projected traffic volumes. These improvements would include a new I-80 eastbound off-ramp north of I-80, a new bicycle and pedestrian overcrossing adjacent to the existing bridge, and expanded lanes at the Business Center Drive/ Green Valley Road intersection.

REQUIRED PERMITS AND APPROVALS

- CDFG Streambed Alteration Agreement pursuant to Section 1602 of the California Fish and Game Code
- U.S Army Corps of Engineers Permit pursuant to Section 404 Clean Water Act
- Regional Water NPDES and RWQCB Water Quality Certification pursuant to Section 401 of the Clean Water Act
- Caltrans Encroachment Permit
- Biological Opinion from the USFWS - Section 7 Consultation

Project Alternatives

CEQA Section 15126.6 requires a consideration and discussion of alternatives to the proposed project to be included in the EIR. Although not required, CEQA regulations also recommend that a comparable practice should be followed for Environmental Assessments. The alternatives comparison lets the decision-maker know that other scenarios were considered, and that the preferred alternatives are the best fit for the project's need and purpose. This chapter identifies

the alternatives that were considered and subsequently withdrawn from consideration. A matrix was developed to evaluate each alternative based on a range of environmental impacts (see Table 1.1). The screening process and results are described below.

West End Alternatives
There were seven alternatives considered within the West End. (See Appendix H) The alternative retained for consideration is W4B. W4B was chosen as the preferred alternative in the West End because it avoids the existing PG&E transmission towers and lines and has reduced hillside grading compared to other alternatives evaluated.

The six alternatives considered and withdrawn from consideration are W1, W2, W3, W4A, W5 and W6. W1 was considered and withdrawn because of its impacts to a future planned development to the north. Alternatives W2, W3, W5 and W6 were considered and withdrawn due to their impacts on the North Bay Aqueduct and the proximity of the alignments to a planned development in the north. Alternative W4(A) was withdrawn because it impacted the pond located in the West End.

Central Section Alternatives
There were two Central Section alternatives considered and withdrawn from consideration. Both alternatives were withdrawn because they conflicted with the planned Fairfield Corporate Commons project approved in 2005. The alternative retained for consideration in the Central Section is one that realigns Business Center Drive west of Suisun Valley Road, removes a small portion of Mangels Blvd between West America and Suisun Valley Road, and creates a new signalized T intersection of West America Drive and Business Center Drive. The roadway to the east of Suisun Valley Road to Suisun Creek will be constructed as part of the Fairfield Corporate Commons project and is not part of the North Connector Project.[2]

Future Truck Scale Locations
The existing Cordelia truck scale facilities are located on I-80 east of the Suisun Valley Road interchange in Solano County. The existing scales are undersized to meet the future demands and needs to accommodate an expanded I-80. Two options were considered to address this deficiency. One option was to relocate the truck scales outside of the I-80/I-680/Sr 12 interchange area. The other option was to relocate and expand the scales near their current location just east of Suisun Creek. Although the latter option was ultimately selected, as detailed in the *Cordelia Truck Scales Relocation Study* (February 2005), the East End alignments were originally designed based on the two scenarios.

East End Alternatives Considered but Withdrawn
Six alternatives were evaluated in the East End (see Figures I.9 through II.13). The alternative retained for consideration is ET3. ET3 was chosen as the preferred alternative in the East End because it best supports the goals of the Agriculture Element of the Solano County General Plan. Solano County has submitted a letter of support for alignment ET3, which is included in Appendix G.

The four alternatives considered and withdrawn from consideration are ET1, E1, E2, and ET2. ET1 was considered and withdrawn because of indirect impacts to agricultural resources. This

2 The Fairfield Corporate Commons project was approved by the City of Fairfield in August 2005. A FEIR was prepared for this project. The project includes construction of a spine road from the intersection of Mangels Blvd and Suisun Valley Road, and east across Dan Wilson Creek to Suisun Creek to provide access for this development.

alignment would have greater impacts to agricultural resource than the other alternatives because its alignment would be located further north of I-80. The other alternatives (E1 and E2) were eliminated from consideration because they were based on the possibility of the truck scales relocated outside of the I-80/I-680/ SR 12 interchange area and because of impacts to business and agricultural resources. ET2 was eliminated due to the impacts it would have had to important farmlands and prime agricultural areas in the project area.

Table 1.1 Screening Matrix for Proposed Alternatives

Alternative	Design Speed/ LOS	Length	Earthwork 2:1 Side Slope	Remarks
W1	80 kph (50 mph)	1,530 m 5,020 ft.	Fill: 36,970 CM Cut: 36,900 CM	Crosses aqueduct. Impacts housing. Dropped.
W2	80 kph (50 mph)	1,677 m 5,500 ft.	Fill: 27,490 CM Cut: 58,050 CM	Crosses aqueduct. Impacts housing. Requires large cut. Dropped.
W3	80 kph (50 mph)	1,693 m 5,555 ft.	Fill: 33,080 CM Cut: 62,290 CM	Crosses aqueduct. Impacts housing. Reduces I-80 interchange spacing. Dropped.
W4A	80 kph (50 mph)	1,290 m 4,230 ft.	Fill: 43,000 CM Cut: 43,100 CM	Splits one ranch. Impacts pond area. Dropped.
W4B	80 kph (50 mph)	1,350 m 4,430 ft.	Fill: 40,250 CM Cut: 40,300 CM	Divides one ranch.
W5	80 kph (50 mph)	1,418 m 4,650 ft.	Not Calculated	Crosses aqueduct. Impacts housing. Requires large cut. Dropped
W6	80 kph (50 mph)	1,323 m 4,340 ft.	Not Calculated	Crosses aqueduct. Impacts housing. Requires large cut. Dropped.
C1	70 kph (45 mph)	2,091 m 6,860 ft.	Fill: 90,500 CM Cut: 90,500 CM	Conflicts with approved development plans. Dropped.
C2	70 kph (45 mph)	2,100 m 6,890 ft.	Fill: 90,500 CM Cut: 90,500 CM	Conflicts with approved development plans. Impacts housing. Impacts I-80 ramps. Dropped.
E1	80 kph (50 mph)	2,618 m 8,590 ft.	Fill: 49,330 CM Cut: 49,330 CM	Impacts business. Dropped.
E2	80 kph (50 mph)	2,607 m 8,550 ft.	Fill: 48,950 CM Cut: 48,950 CM	Impacts farm parcel size. Dropped.
ET1	80 kph (50 mph)	2,539 m 8,330 ft.	Not Calculated	Impacts farm parcel size. More expensive & more impact than ET2. Dropped
ET2	80 kph (50 mph)	2,599 m 8,530 ft.	Fill: 55,000 CM Cut: 55,000 CM	Impacts farm parcel size.
ET3	80 kph (50 mph)	2,356 m 7,730 ft.	Fill: 50,000 CM Cut: 50,000 CM	Impacts business.

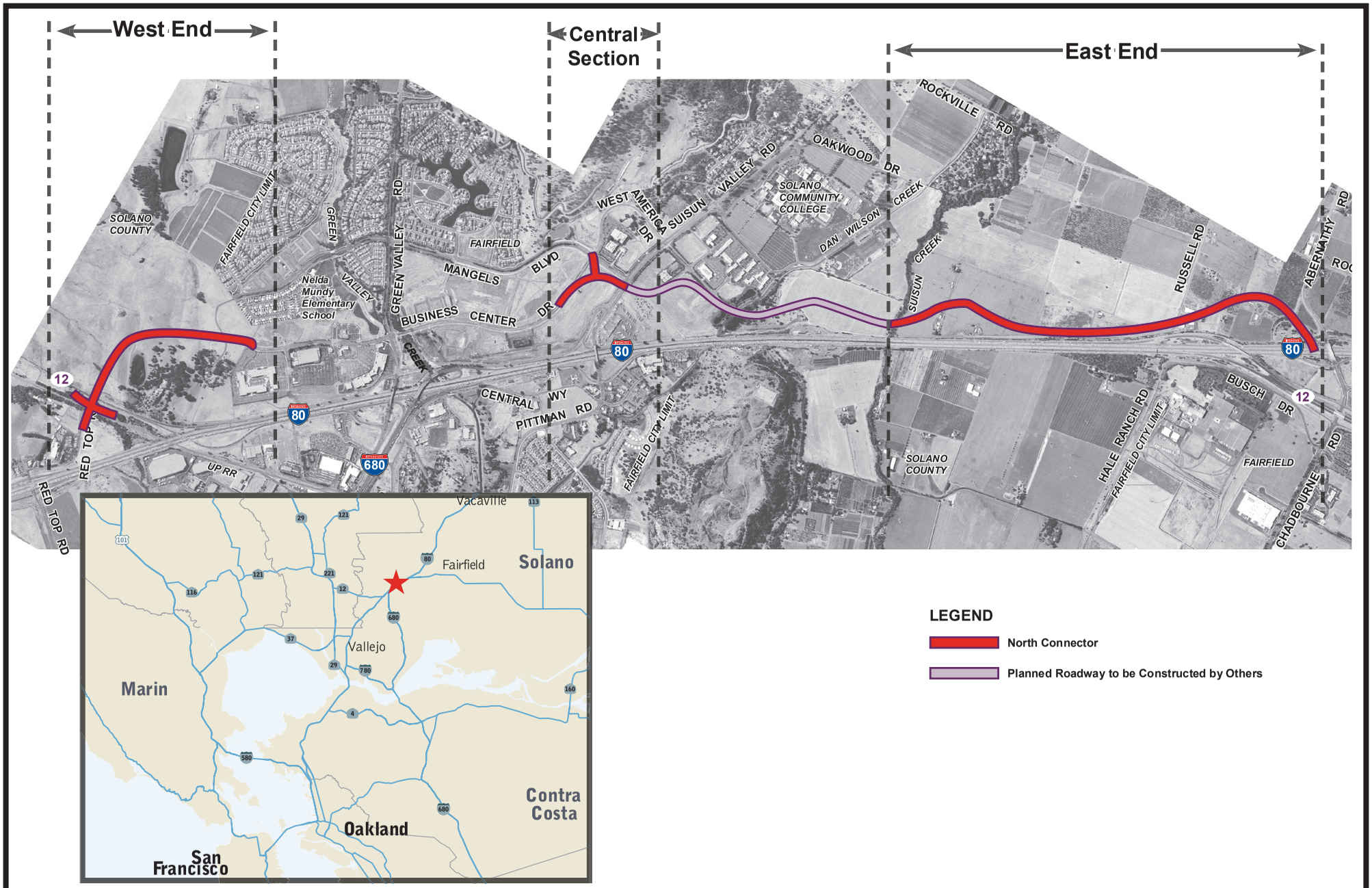

Figure I.1. Project Location & Limits

north
Map not to scale

NORTH ConnectoR

STA Solano Transportation Authority

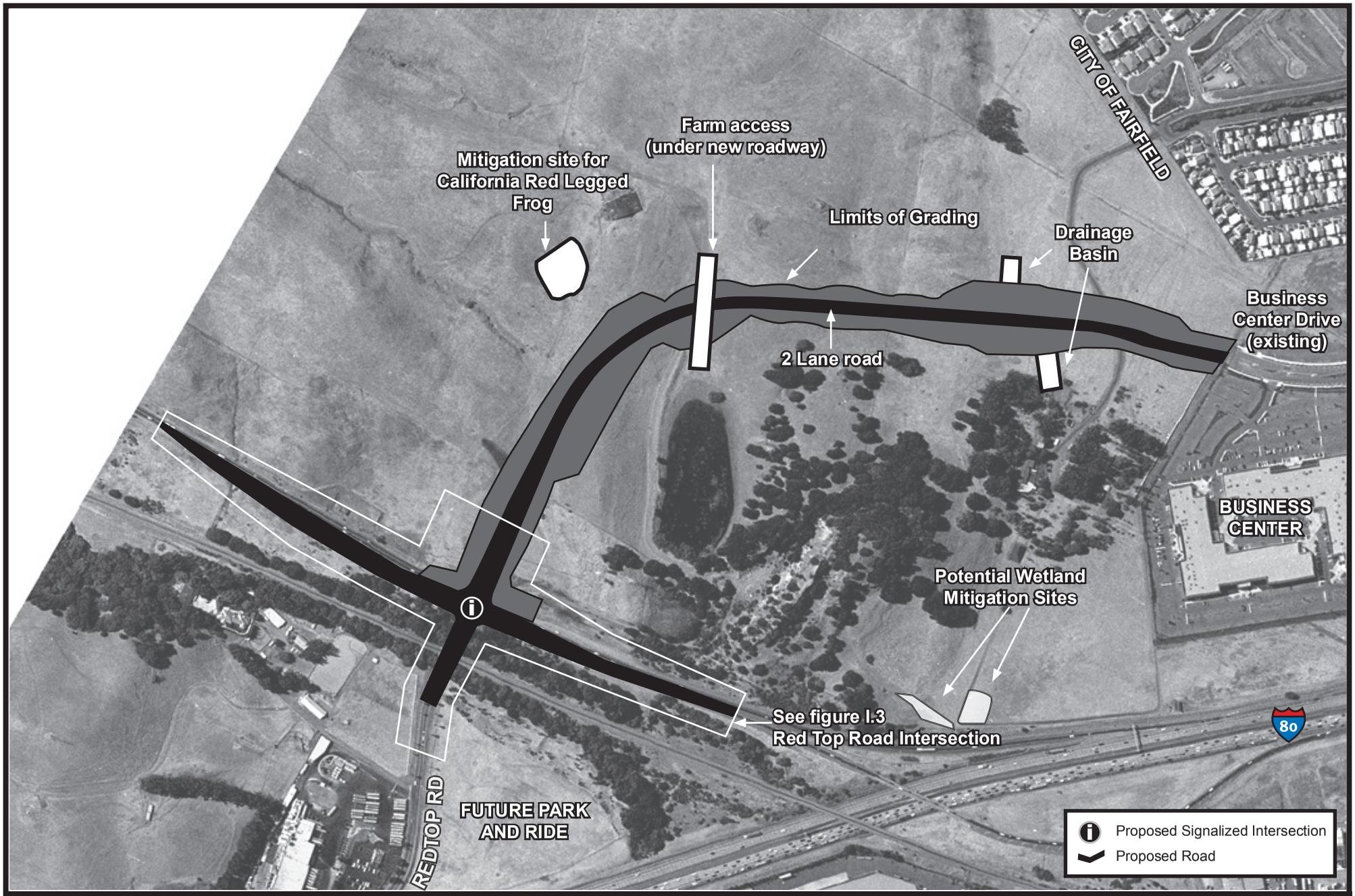

Figure I.2. West End Alignment

north
Map not to scale

NORTH ConnectoR

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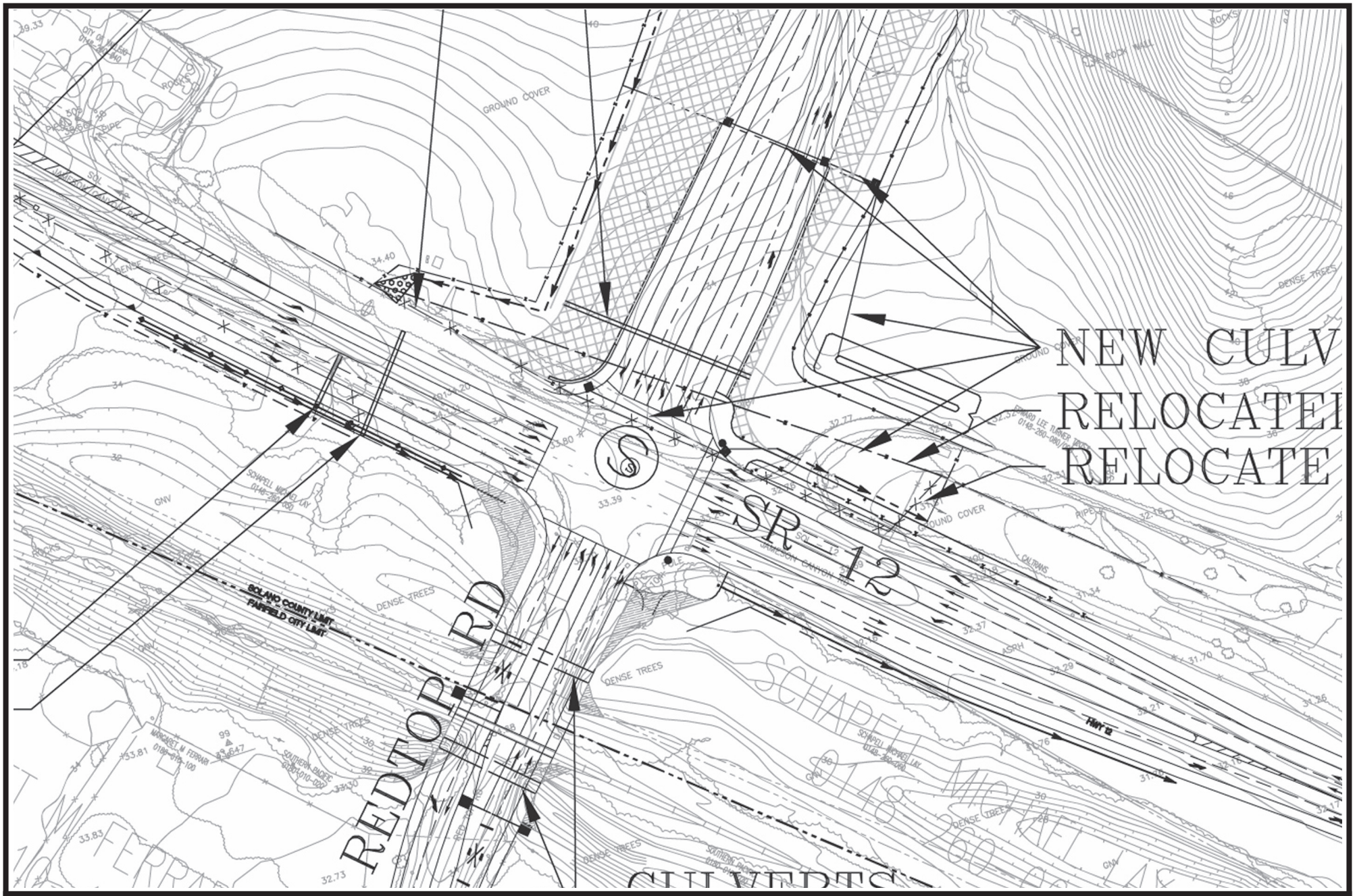

Figure I.3. SR-12/Red Top Road Intersection

north
Map not to scale

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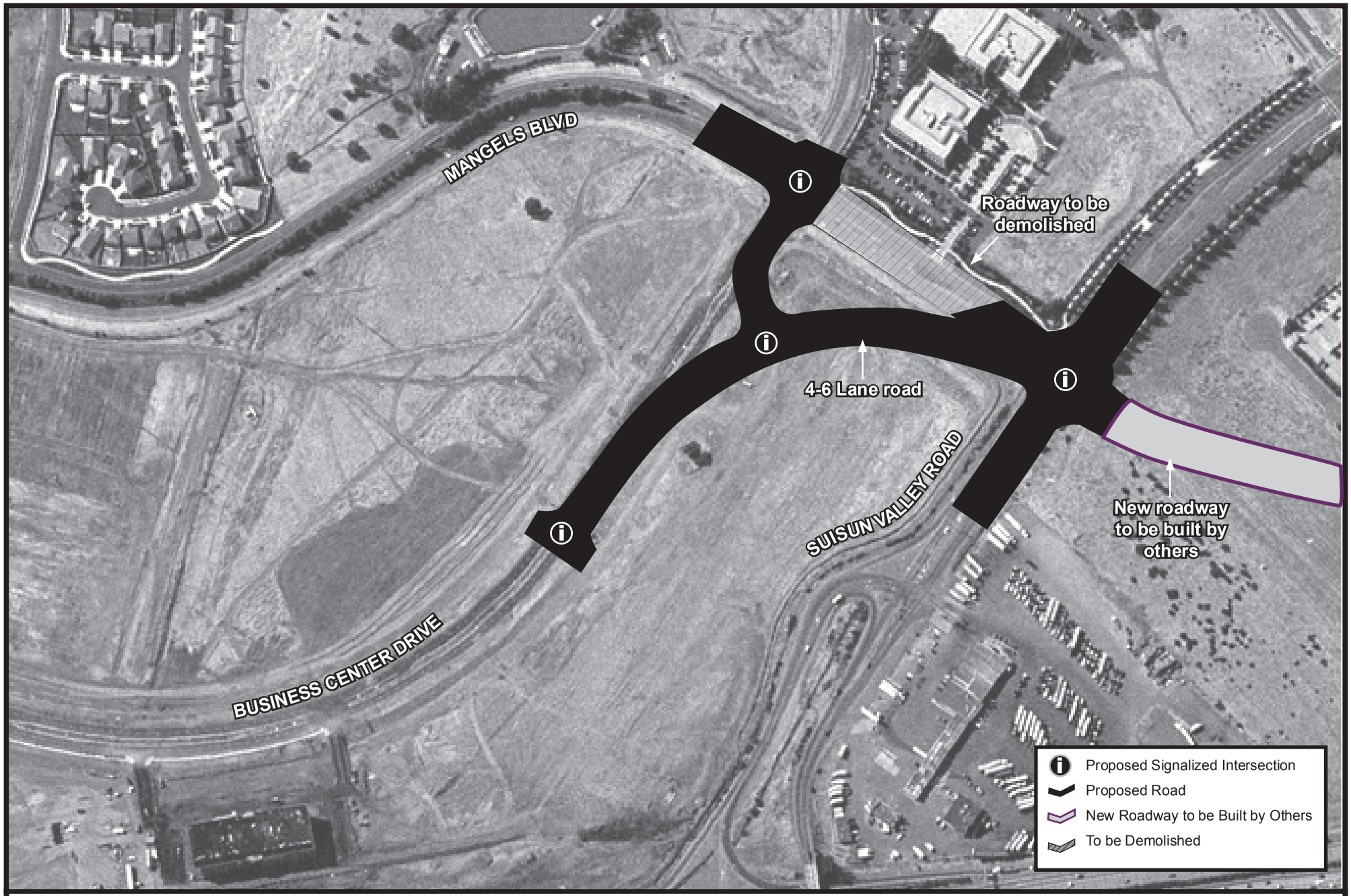

Figure I.4. Central Section and Business Center Drive

north
Map not to scale

NORTH ConnectoR

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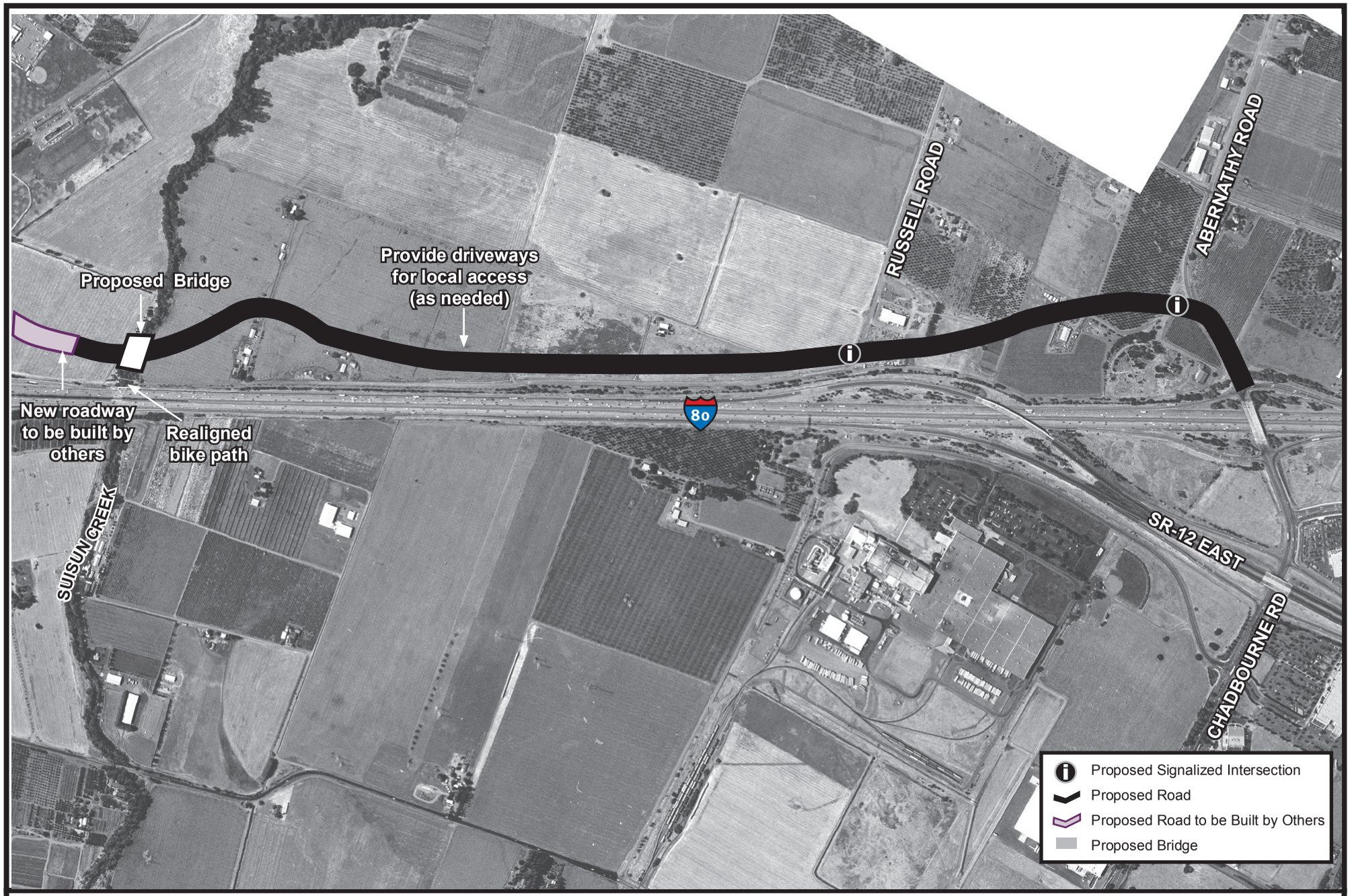

Figure I.5. East End Alignment

north
Map not to scale

NORTH ConnectoR

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NORTH CONNECTOR

80 WESTBOUND

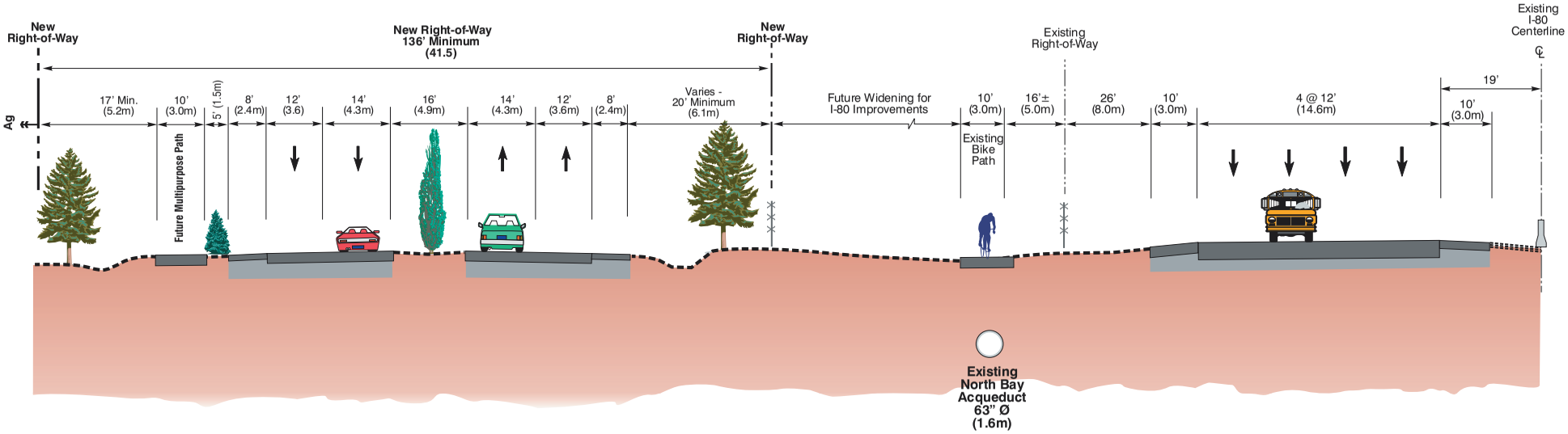

Figure I.6. Cross Section East of Suisun Creek (Solano County)

All sections looking east

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NORTH CONNECTOR

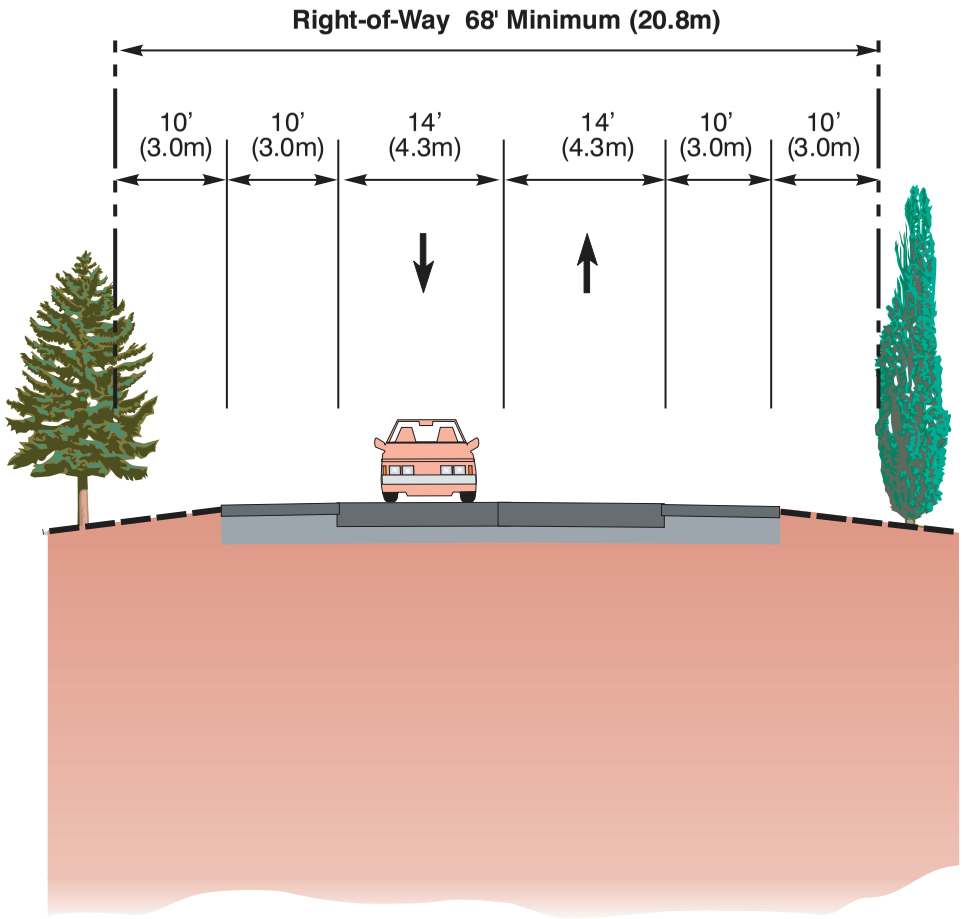

Figure I.7. Cross Section West End near Red Top Road (Solano County)

All sections looking east

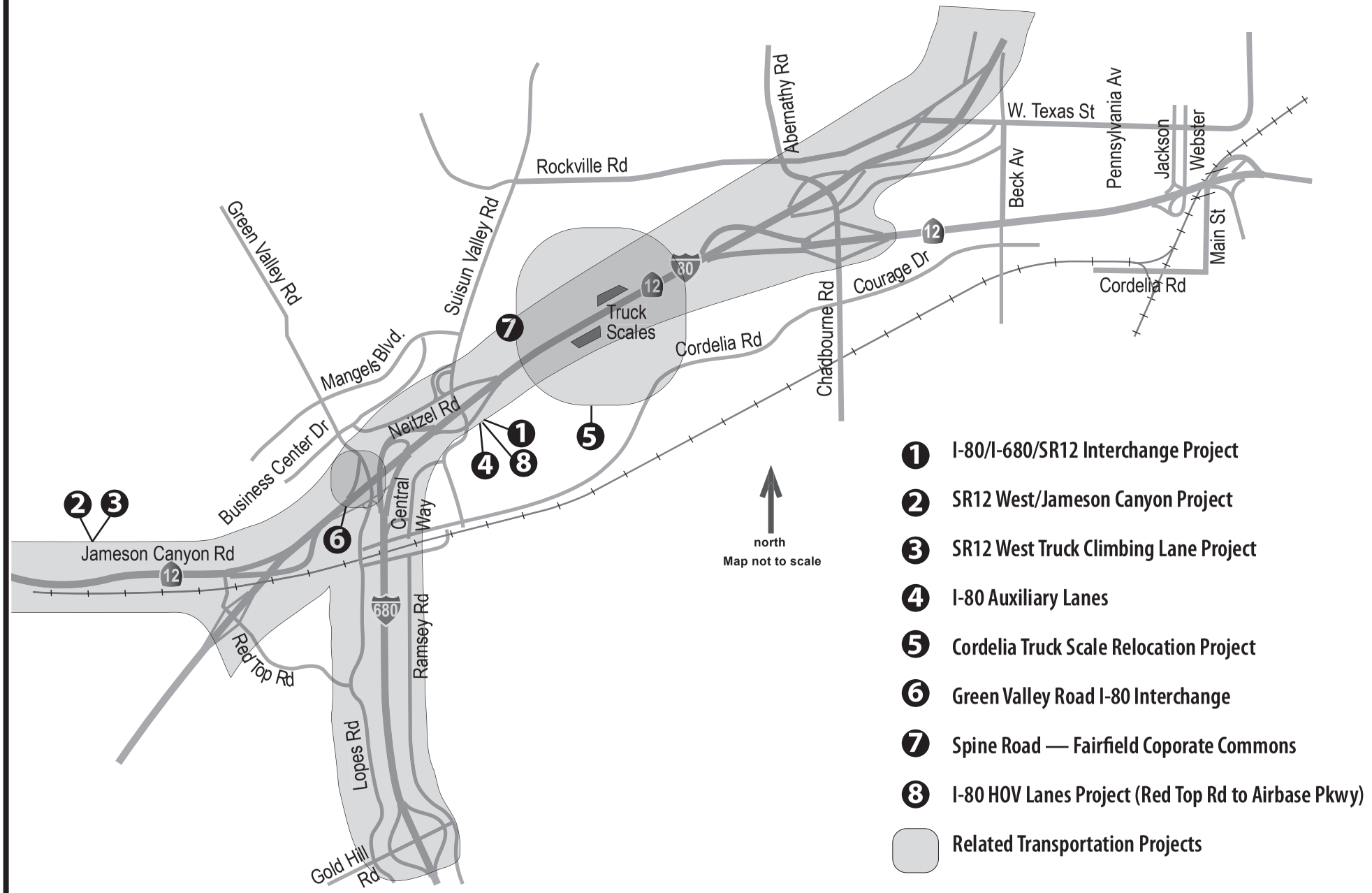

Figure I.8. Related Transportation Projects

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